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ABSTRACT

The urban, ethnically Hawaiian child typically experiences great difficulty in learning to read English. In order to determine whether phonological confusion is a source of dialectical interference, the Kamehameha Early Education Program (KEEP) Phone Discrimination Test (KPDT) was developed for the one hundred twelve students in the KEEP school (K-3). This research report describes the development of the procedure for item inclusion and for administration of the test. The research sought to answer the following questions: (1) whether bidialectal confusion difficulties should be assumed, (2) whether all confusions of this sort are idiosyncratic in nature, and (3) whether there is a need for a program to eliminate confusions due to differing phoneme inventories of an idiolectal or dialectal nature. Eight Hawaiian-Creole-speaking children selected by KEEP personnel were the subjects in the development of the test. The final version concentrates on five phoneme pairs which appear to be sources of allophonemic confusion for the children tested. It appears to test (at the allophonemic level) points of overall phonemic confusion which could be predicted to be sources of difficulty in learning phoneme-grapheme correspondence. This report includes a test sample and directions for its administration and use. (AMH)

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The KEEP Phone Discrimination Test

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The Kamehameha Early Education Program

The Kamehameha Early Education Program (KEEP) is a research and development program of The Kamehameha Schools/Bernice P. Bishop Estate. The mission of KEEP is the development, demonstration, and dissemination of methods for improving the education of Hawaiian and Part-Hawaiian children. These activities are conducted at the Ka Na'i Pono Research and Demonstration School, and in public classrooms in cooperation with the State Department of Education. KEEP projects and activities involve many aspects of the educational process, including teacher training, curriculum development, and child motivation, language, and cognition. More detailed descriptions of KEEP's history and operations are presented in Technical Reports #1-4.

Abstract

The KEEP Phone Discrimination Test (KPDT) was constructed to inquire into one possible source of dialect interference, the phonological. This report describes the development of the procedure for item inclusion, and the administration procedures. The final form of the KPDT is presented, as are the results of the pilot testing.

Technical Report #64

The KEEP Phone Discrimination Test

Kenneth J. Smith Henry Truby Roland G. Tharp Ronald Gallimore

The modern, urban, ethnically Hawaiian or part-Hawaiian child typically experiences great difficulty in learning to read in the public schools. The Kamehameha Early Education Program is a research and demonstration school in Honolulu, established to inquire into the causes and potential corrections of this difficulty.

One immediately salient feature of the Hawaiian children's presentation is their language. Hawaiian Creole, known locally as "Pidgin," is a non-prestigious, creolized variety of English; most children are, to some degree, bidialectal, but individual dialect preference and competence are highly varied.

Does dialectal interference, in any form, hinder Hawaiian children's reading acquisition? The purpose of the present paper is to inquire into one of the possible sources of dialectal interference, namely, the phonological.

The research was carried out at the Kamehameha Early Education Program (KEEP). KEEP operates a K-3 elementary school, whose 112 students are preponderantly urban Hawaiian children. These children were the subjects for whom the KEEP Phone Discrimination Test was developed and tested.

A Phone Discrimination Test, similar to the Smith-Truby Form SE, seemed necessary in order to answer the following questions:

In the teaching of so-called "phoneme-grapheme correspondences" (better: phone*-graph correlations), or of any other aspects of "phonics," to

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*A phone is defined as an allophonic instance or manifestation of a

Hawaiian-Creole speaking children,

a. Should biadialectal confusion difficulties be assumed?

b. Are all confusions of this sort idiosyncratic in nature?

c. Is there a need for a program to eliminate confusions due to differing phoneme inventories of an idiolectal or dialectal nature?

In the current research, KEEP children were examined, teachers queried, and a phone-discrimination test developed, administered, and evaluated, so that the foregoing questions might be answered.

Test Development Procedure

The authors listened intently to the children's vocal performance during a number of informal and semiformal individual and group interviews, including an extensive cafeteria session during mealtime (Spring, 1975). KEEP linguists and other personnel were consulted to determine their observations of possible phoneme--or allophoneme**--confusions. To these were added those possible confusions which might be anticipated as a result of the inherent differences between Hawaiian-Creole (HC) and Standard English (SE).

A large number of minimal contrast pairs were selected for presentation to a few children in order to test the hypothesized sources of confusion. For example, such a contrast pair as "than/Dan" may be used to observe whether or not the initial allophonemes of the phoneme pair /ð/-/d/ were consistently discriminated by individual listeners. In other instances, where allophonemes might be confused in a final or medial or postconsonantal-in-consonant-cluster

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particular phoneme. Oversimplified, it is "a speech sound" (a conventional, but highly suspect notion), but when validly applied, more to the point than "phoneme."

**An allophoneme is a positional-variant referent of a particular phoneme.

or preconsonantal-in-consonant-cluster position, sampling was done of such contrast pairs, for example, "cap/cat" for /p/-/t/ for final position; "misses/Mrs." for /s/-/z/ for medial position; "tripped/tricked" for /p/-/k/ in the clusters indicated; "pill/peel" for /ɪ/-/i/ for primary vowel distinction, etc.

Sufficient information can be had on such age children, and for the circumstances of interest, by confining this test to initial position only for the consonants and to principal tonic position for the vowels. We did, however, for the present test, include a sampling of one instance of final position allophonemic--and, thus, phonemic--confusion, this involving /s/ versus /z/ as exemplified by "hiss/his" and by "bus/buzz."

This list of contrasts was then recorded on tape cassettes and administered as a test to the individual members of a group of eight Hawaiian-Creole speaking-("high pidgin") children selected by KEEP personnel. It was arbitrarily decided that an item would be considered a source of confusion if three of the eight children consistently responded to it inaccurately, that is, if they consistently confused the contrastive pair.

The KEEP Phone Discrimination Test (KPDT) was then constructed. It included only items contrasting allophonemes which met the three-out-of-eight criterion, plus an adequate number of distractors (i.e., item pairs presented in the same format but entered into the tape list as linguistic sames, e.g., "try/try").

The younger the child interviewed, the more apt was he or she to fail to appreciate the significance of either "same" or "different." In such cases, the articulate and acoustic fact that no one can possibly repeat any utterance identically might have caused some problem, or that the differing positioning of the items--that is, the one uttered first versus the one

uttered second--might cause some confusion. Aware of these possibilities, we were careful to ascertain that the child comprehended what was intended by asking if paired items were "the same or different." We believe that the KEEP PDT resolves such problems insofar as the individuation of the included items versus the distractors.

Results

Rather surprisingly, given the great difference between the phoneme inventories of Hawaiian-Creole and SE, and the marked differences of articulatory and acoustic manifestation, only five allophoneme pairs seemed to be sources of phoneme confusion. To state it another way, only five phoneme pairs across source and target language appear to be sources of allophonemic confusion for the children tested. These were: /ɟ/-/d/, /u/-/ʊ/ (preceding /l/), /ɔ/-/ʌ/, /s/-/z/ (finally), and /θ/-/t/ (the last chiefly in the initial cluster /θ-/ or /tr-/). Numerous other uttered manifestations did not turn out to be accurate predictors of phone-, allophoneme-, or phoneme-confusion.

The final form of the KEEP PDT, which paired the above contrasts in differing phonological environments, did appear to test (at the allophonemic level) points of overall phonemic confusion which could be predicted to be sources of difficulty in learning phoneme-grapheme correspondences (*via phone-graph correlation, as indicated above).

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*Once a given sound sector has been identified as referent to a particular phoneme, each of the ways that sound sector can be represented orthographically--spelled--is a graph, in its turn referent to a particular "grapheme," as conventionally surmised, though actually the referent is the particular phoneme in question, directly, there being no prototypical "grapheme" whatsoever--only sets of related graphs (i.e., allographic sets). To exemplify: Which or what is "the grapheme" for the inventory of underlined spellings (or graphs) related to the phoneme /k/ (and limited, here, to consonant letters only), as in cat, kit, chord, back, accord, acquire or sacq(ue), Iraq or quit or uniq(ue), bacchanal, khaki, chukker, talk, tax (where x = /ks/), . . . ?

Direction for test administration

The final form of the test (see Table 1) consists of a typed "record form" comprising the pairs of carrier words of the contrasts being examined, and an audio cassette tape on which the same pairs of carrier words were recorded by a local female teacher.

Table 1

Phone Discrimination Test

Sample Items

a. try/try

b. pill/peel

Test Items

1.	than/Dan	11.	cooed/could
2.	done/done	12.	taught/thought
3.	pull/pool	13.	buzz/bus
4.	thank/tank	14.	three/three
5.	sue/zoo	15.	fool/full
6.	cot/cut	16.	though/dough
7.	fool/fool	17.	Ron/run
8.	tree/three	18.	then/then
9.	dare/there	19.	z/see
10.	bum/bomb	20.	nut/not

After a brief period of rapport-building conversation between test administrator and child, the child should be asked to indicate whether two

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Each graph "qualifies" as an orthographic representative of some phone related to /k/ (some allophone of /k/), and all graphs depicted qualify equally as related members--allographs--or the relevant allophonic set, each of whose individual members manifest the hypothetical "grapheme" directly referenced to /k/.

words such as "cake/bake" are "the same" or "different." Then such additional pairs both of contrasting words and distractors (e.g., "fun/run," "boy/boy," etc.) should be presented to assure that the child knows what to do. Although the terms "same" and "different" may be unfamiliar, especially to the younger children, it was found that the desired information could be derived by allowing such responses as "same" and "not the same" or "alike" and "not alike," once the idea was grasped by the child.

The actual test tape should not be presented until it is clear that the child understands the task and can readily respond with a usable assessment. Experience with the children tested indicated that this was not a difficult problem, but one deserving of care and attention nonetheless. (The criteria which developing children use to make these decisions are quite varied: Differences of voice inflection, of emphasis, of deliberation, even of position or order may elicit decisions of "different" or "not the same" from younger children.)

When the above preliminaries have been dealt with, explain to the child that the woman speaking on the tape is going to say some more pairs of words and, as before, that the child is to tell whether the words of each pair are "the same" or "different" (or other response). Then start the tape and record on the protocol the accurate ( ) and inaccurate (X) responses. Adequate time is left on the tape for responses. However, if it is necessary to stop the tape between pairs of words in order to avoid confusing the response-at-hand with the next pair, this is easily and quietly controlled with a microphone switch or a pause control on the tape recorder, providing such a remote-control device is a part of the equipment being used, of course. Most cassette recorders provide one or the other.

Directions for use

If it is determined that a child does confuse certain of the allophoneme pairs being tested, such confusion has certain implications. First, of course, there is no point in attempting to teach phoneme-grapheme correspondences or specific phone-graph correlations for phonemes or constituents which are not identifiable to the child. Secondly, the sequence of presentation may need to be altered or adjusted in order to present those correspondences for which we have data in an order relevant to attendant (allo)phoneme confusion and lack of it. That is, those phone-graph correlates for which potential confusion exists should be delayed in the instructional sequence until the phoneme confusion has been eliminated. An approach to dealing with this problem may be made through a combination of a "bathing in the language" approach, that is, providing massive oral modeling for the child, and a program structured more toward requiring allophoneme differentiation in order to promote meaning differentiation (e.g., "Look at that cot."/"Look at that cut.", etc.). (Numerous such contrasting pairs can be found in ESL--English As A Second Language--materials or in the Miami Linguistic Readers--D. C. Heath.) Thirdly, the confusions noted should be kept in mind by the teacher as regards the performance of individual children.